

Amendments to the Specification, with reference to the
Preliminary Amendment filed concurrently with the application:

Please replace the paragraph inserted on page 1, line 1,
with the following rewritten paragraph:

CROSS REFERENCE TO RELATED APPLICATIONS

B1

Applicants claim priority under 35 U.S.C. §119 of Austrian Application No. A 996/99, filed on June 4, 1999. Applicants also claim priority under 35 U.S.C. §120 371 of PCT/AT00/00158, filed on June 5, 2000. The international application under PCT article 21(2) was not published in English. --

Please replace the first replacement paragraph on page 1
with the following rewritten paragraph:

B2

The invention relates to a method of detecting a welding process voltage, as outlined in claim 19 between a welding torch and a workpiece, comprising the step of performing a calculation of the welding process voltage in real time, taking account of the interference variables, in particular an inductance and a resistance of a welding system.

Please replace the replacement paragraph bridging pages 1

and 2 with the following rewritten paragraph:

b3

This objective is achieved by the invention due to the features set out in the characterising part of claim 13 by performing the calculation for determining inductance at a specific time interval during a welding process without the welding process being affected. This makes it possible to adapt to the control speed or to the requisite welding quality so that welding processes can be run at a very high control rate and to a high welding quality. The advantage of this arrangement is also that the interference variables can be detected without the need for additional hardware, thereby avoiding any external influences. Another advantage resides in the fact that the calculation method used to determine the interference variables can be run continuously or periodically, which means that in the case of a pulse welding process, a control can be applied during the entire duration of the pulse, making it possible to use or generate very short pulses without having to extract a corresponding range that is not controllable, as is necessary with the prior art.

Please replace the second complete to the seventh replacement paragraphs on page 2 by the following rewritten paragraphs:

84

Also It is also of advantage are the features defined in claim 14 which to apply the calculated welding process voltage by a control unit to the welding process. This produces a very high welding quality because the interference variables can be taken into account in the process control.

Claim 15 also defines features which are of advantage, since they make it possible to adapt to the control speed or to the requisite welding quality so that welding processes can be run at a very high control rate and to a high welding quality.

It is additionally the additional features set out in claim 16 are of advantage if the interference variables are detected and/or calculated by the control unit before the start of the actual welding process because they this obviates the need for an additional control device for the detection or calculation process and instead this calculation can be operated by the control device used to regulate the process.

Claim 17 offers advantageous features because a A standardised structure can be used for the equipment if a voltage and a current at the outputs of the current source are measured by a measuring device.

~~The additional features defined in claims 18 to 20 offer advantages because they allow a simple computation model to be used to determine the ohmic resistance and inductance.~~

By

~~Claims 21 and 22 specify advantageous features, as a result of which a computation of the interference variables can also be run during a welding process without having to interrupt the welding process.~~

~~Finally, the features outlined in claims 23 and 24 are of advantage because they enable the welding process control to be optimised and offer a simple means of inexpensively improving older welding equipment or welding current sources can be simply and inexpensively improved by means of a software update if a welding process control is performed during the entire pulse duration and the interference variables are calculated by the control unit by means of software using the detected values and a predetermined calculation program.~~